CALIFORNIA HYDROGEN HIGHWAY NETWORK
GENERAL FACT SHEET

The mission of the California Hydrogen Highway Network is to assure that infrastructure is in place to enable fuel cells and other hydrogen vehicle technologies to be used by consumers as they reach commercial readiness. Working in partnership with other components of the State's environmental and energy programs, the CaH2Net can help achieve more stable and sustainable energy usage, and increase the number of zero emission vehicles (ZEVs) on California's roads.

Background

California has long been a leader in the development of advanced zero and near-zero emission vehicle technologies, including those fueled by hydrogen. To continue this leadership and pursue a variety of important benefits for all Californians, Governor Arnold Schwarzenegger directed the California Environmental Protection Agency (Cal/EPA) in April 2004, to develop a "Blueprint Plan" that will expedite availability of hydrogen fueling stations and products that use hydrogen. The Blueprint Plan was developed through a collaborative process with input from more than 200 stakeholders from energy, auto and technology companies, environmental organizations and local, State and federal government agencies. The Blueprint Plan was presented to the Governor in May 2005.

Actions

The California Legislature has authorized 18.5 million in funding for stations, hydrogen vehicles and hydrogen fuel cell buses. The Air Resources Board has awarded funding for three stations and will solicit proposals for 3 to 5 additional stations in late 2008. Fuel cell bus programs have been funded to demonstrate revenue service buses in the San Francisco Bay Area and in Southern California. And a variety of hydrogen vehicles has been procured and placed into fleet services across California. Hydrogen quality standards have been adopted by the Department of Measurement Standards who are also developing hydrogen dispensing standards. Pursuant to Senate Bill 1505, the Air Resources Board is developing hydrogen production environmental standards to ensure reductions in greenhouse gases, criteria pollutants and use of renewable feedstocks in the production of hydrogen. The CaH2Net continues to coordinate with automakers, hydrogen providers and technology providers to enable commercialization of hydrogen fuel cell vehicles.

Benefits

California is pursuing the advancement of hydrogen because it addresses several of the State's high-priority challenges, including environmental protection, energy security and diversity, and economic development. Since hydrogen can be produced from a vast spectrum of sources, including clean renewable sources such as water, wind, sun and biomass, it can significantly contribute to reductions in greenhouse gas emission from motor vehicles.

Hydrogen used in fuel cell vehicles results in zero vehicle emissions, and can provide near zero emissions when used in an internal combustion engine (ICE) vehicle. When hydrogen is produced from renewable resources and used to power FCVs, the entire chain of processes (fuel production through end use in a vehicle) results in extremely low environmental impact. Even when FCVs are powered by hydrogen produced from natural gas, which is currently the most common method, the entire process chain still results in a 50% reduction in greenhouse gases and a 40-90% reduction in smog forming and toxic emissions compared to today's average fleet gasoline-powered vehicles[1].

Role

California's vision for hydrogen is part of a larger objective to address air quality, climate change and energy security concerns in our State. The CaH2Net plays an important role in California's plan to reduce greenhouse gas emissions from motor vehicles by 80 percent by 2050 by providing a network of publicly accessible hydrogen infrastructure in California to support the growing number of zero-emission hydrogen vehicles, and ensuring a steady progression of hydrogen production from clean, sustainable resources.

Conclusion

Actions are being taken to bridge the gap between the current dominance of gasoline and the introduction of sustainable transportation fuels. The CaH2Net is one program among others that will help get us there. For More Information If you would like to learn more about the California Hydrogen Highway Network, please visit www.HydrogenHighway.ca.gov.

[1] M. Wang, Y. Wu, and A. Elgowainy, 2005, *Greenhouse Gases, Regulated Emissions, and Energy use in Transportation (GREET) 1.7*, Center for Transportation Research, Argon National Laboratory. Model simulation comparing 2005 model year light duty vehicles to FCVs.